A Tambour-topped Box

TALK ABOUT COOL — WHEN YOU PULL THE DRAWER OPEN ON THIS LITTLE BOX, THE TAMBOUR TOP ROLLS BACK — A DEFINITE ATTENTION-GETTER!

WOODARCHIVIST.COM

This box has a little surprise that gives it "wow" factor: When you open the drawer, the top of the box retracts like a mini roll-top desk. The top is a tambour, with a series of narrow slats glued to a flexible canvas backing. The tambour slides in a curving track in the sides of the box. When you pull the drawer open, the tambour automatically opens, revealing a shelf inside. The box is sized to be useful as a jewelry box, a case for storing watches, sunglasses, etc., or as a desktop caddy to keep pens, erasers and other office supplies organized.

Forming the Sides and Tambour Track

To start this project, cut out the two sides of the box from any nice hardwood stock planed down to a final thickness of 5/8". Cut out two partial discs that are exactly 7½" diameter by putting the point of a compass exactly 1½" from the square edge of the stock. After rough cutting the discs out with a band saw or jigsaw, stick them together using double-stick tape or adhesive transfer tape, then use a stationary disc or belt sander to sand them to final size (Figure 1). Separate the parts, remove the tape and mark the inside face and front-facing edge of each part.

Next, rout the tambour tracks on the inside faces of the sides (I've made a video of the entire tambour making process, which can be viewed here: *www.woodworkersjournal.com/TambourBox)*. To create the track, use a small plunge router fitted with a 1/4" spiral-fluted straight bit and a 3/8" O.D. guide bushing attached to the router's subbase. A template, made from a 7" by 4¾" piece of 1/4"-thick

Masonite or hardboard, guides the bushing during track routing. Print out a paper copy of the template shown on page 65, and glue it to the template stock with craft spray glue. After drilling two 3/8" holes in the locations shown, cut the outer edge of the template to shape, as well as the waste in the channel section of the template. Use a 3/8" bit in a router table to rout the channel to final size, using the table's fence to guide the cut (Figure 2). Sand the edges of the template square and smooth with a stationary disc or strip sander.

Now use double-stick tape to secure the template in place on the inside face of one of the box sides, carefully positioning the template's bottom edge flush with the bottom of the side and its front edge flush with the front of the side. With the plunge router set to take a 1/4"-deep cut, rout the track starting at the top of the template. As you move the router around the template, take care to keep the guide bushing tight against the template's edge (Figure 3). When you reach the end of the channel, stop routing.

Before removing the template, mark its angled end (just below where the channel starts) onto the side with a fine pencil line. Now remove the template, peel or rub off the tape, and attach the template to the inside face of the other box side, reversing it front-to-back so that you'll rout a mirror image of the track. Rout and mark as before.

There's one more bit of track routing you'll need to do, to allow the tambour to be installed or removed from the assembled box. Make the second 1/4"-thick template following the pattern shown in the *Drawings*. Line up the template's angled notch with the pencil mark you made earlier and set its lower edge so that it overhangs the bottom of the box side by 3/8". Clamp the template and side down to a bench top, taking care to locate the clamps so they don't interfere with the router's base. Then rout the short exit track, starting the router at the bottom edge of the template (Figure 4, next page).

Making the Bottom and Shelf

The box's bottom and shelf are made out of 3/8"-thick stock. Cut out both of these parts from the same hardwood as the sides, so they'll match. Bevel-cut the front edge of the box bottom to 15°, so that it'll match the slope of the sides.

To keep small items from rolling off the back of the shelf and interfering with the tambour, the shelf's back edge receives a raised cap strip with a cove cut into its upper, front facing edge. Cut the cove into the strip using a 3/8"-diameter core box bit in your router table, then glue it to the back edge of the shelf. The shelf also receives a small bead strip, to keep small items from rolling off its front edge. Cut the 5/16"-diameter half-round bead using an edge-beading bit in the router

Figure 1: The author sands the two sides to their final shape. While they are being sanded, the sides are held together with double-sided tape. This technique virtually assures that the sides are identically shaped.

Figure 2: Making a template to guide the router while cutting the tambour track is an essential step. Once again, the template is used to provide dependable uniformity in the machining process.

Figure 3: While routing the tambour track, keep constant pressure on the edge of the guide template. Loss of control during this operation will likely result in a ruined side piece. A plunge router works best here.

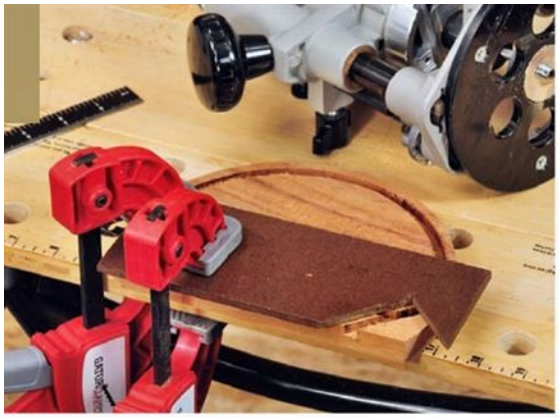


Figure 4: An additional bit of track routing is required to allow access for the tambour during assembly. The small template is clamped securely to the workpiece — it will work for both sides of the box.

Figure 5: The author used biscuits to join the shelf and the bottom to the sides of the box. Note the stop block clamped to the work surface. It is cut square and holds the side 90° to the table and biscuit joiner.

Figure 6: Once the small clearance miter has been cut onto the lower rear corners of the drawer sides, a small triangle of stock must be removed using a sharp chisel.

table. Set this strip aside for now.

The shelf and bottom are secured to the sides using #10 biscuits (Figure 5). Set up the biscuit joiner to center the slots thickness-wise in the ends of the shelf and bottom, locating them as shown in the *Drawings* on the opposite page. Cut the biscuit slots in the box sides so that the bottom and shelf will be positioned as shown in the *Drawing*.

Sand the parts smooth, leaving the edges of the ends crisp where they'll join the sides. Also sand the inside faces of the sides, paying special attention to smoothing the inside surfaces of the routed track. Don't round over the edges of the sides just yet.

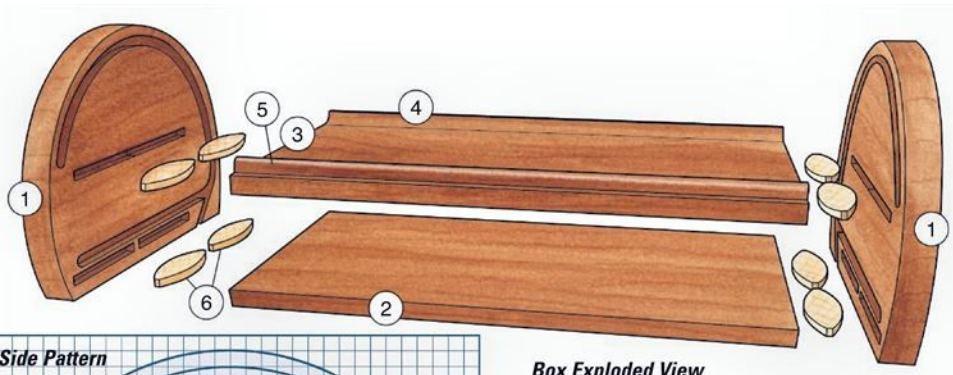
Building the Drawer

The space formed by the sides, shelf and bottom of the box serve as a housing for the box's drawer. The drawer is sized to fit snugly in this space, yet slide smoothly in and out of it. Cut out the parts for the drawer following the *Material List*. You can use just about any wood for the drawer box parts, but for the drawer front and pull cap, use the same hardwood that matches the rest of the box. You can cut the drawer bottom either from solid stock or 1/4" hardwood plywood (which is typically about 3/16" thick).

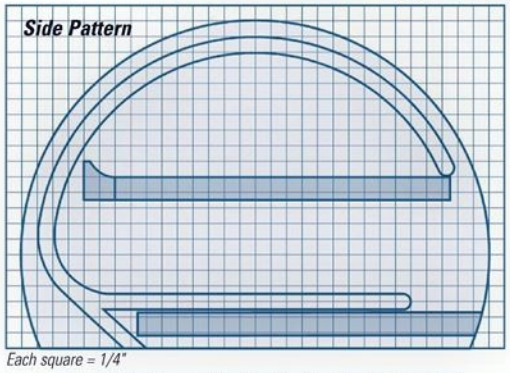
Cut a 3/16"-wide, 3/16"-deep groove on the inside face of both sides and the drawer front, using either a table saw or a router table. Space the lower edge of the groove 1/4" up from the bottom edge of each part. Cut or rout a 1/8"-wide, 5/32"-deep dado into the inside face of the two sides. Space these grooves 1/2" from the back ends of the sides. Next, cut the joints on the ends of the drawer back. Using a 1/4" straight bit in the router table, rout a rabbet to form a 1/8"-wide, 5/32"-long tenon on each end of the back.

To create clearance where the tambour attaches to the drawer, cut off the back lower corner of each side at a 45° angle. Then, using a sharp chisel, trim the small triangular piece above the miter cut flush with the depth of the drawer bottom groove as shown in Figure 6, at left.

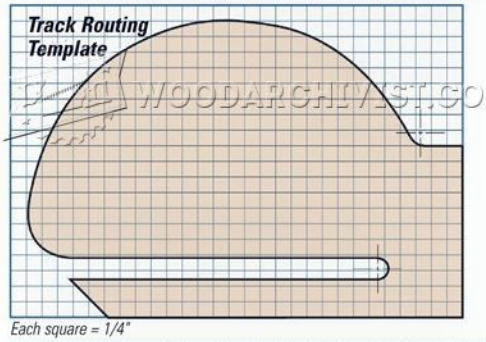
To shape the drawer pull strip, first use a 3/8"-diameter core box bit to take a 3/8"-deep cut into the lower edge of the strip (Figure 7, page 66). Set the table's fence so that the cove is spaced 1/4" back from the strip's front edge. Trim the strip on the table saw, to form the 1/4"-thick section that will be glued atop the drawer. Use a 1/2"-radius roundover bit in the router table to shape the top edge of the pull, then set the strip aside. To join the



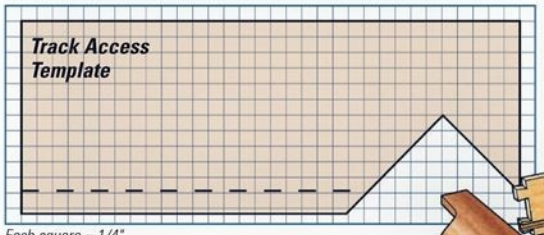
Box Exploded View



Each square = 1/4"



Each square = 1/4"



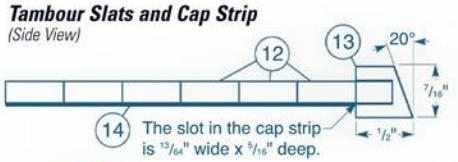
Each square = 1/4"

Material List

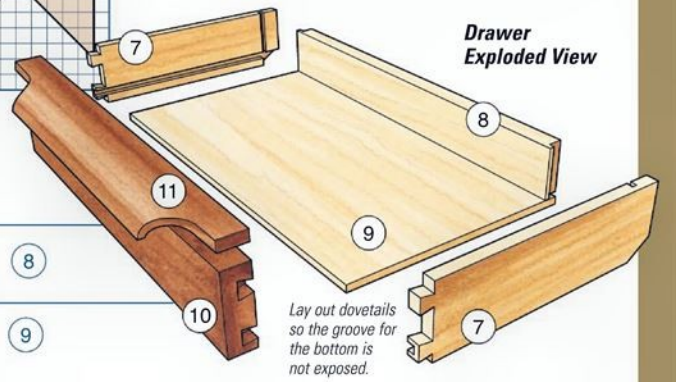
		T x W x L
Box:		
1	Sides (2)	5/8" x 5¼" x 7½"
2	Bottom (1)	3/8" x 5⅝" x 10 13/16"
3	Shelf (1)	3/8" x 5 5/16" x 10 13/16"
4	Rear Cap for Shelf (1)	5/8" x 1/2" x 10 13/16"
5	Front Bead Strip (1)	5/16" x 5/16" x 10 13/16"
6	Joinery Biscuits (8)	#10 plate joinery biscuits
Drawer:		
7	Sides (2)	5/16" x 1¾" x 6 5/16"
8	Back (1)	1/2" x 1 5/16" x 10 7/16"
9	Bottom (1)	3/16" x 5⅞" x 10⅜"
10	Front (1)	5/8" x 1⅞" x 10¾"
11	Pull Strip (1)	5/8" x 1 5/16" x 10¾"
Tambour:		
12	Slats (21)	3/16" x 1/2" x 11 3/16"
13	Cap Strip (1)	7/16" x 9/16" x 10¾"
14	Lightweight Canvas Duck Fabric (1)	11⅛" x 11"
15	Screws (2)	#6 x 1/2" long

WOODARCHIVIST.COM

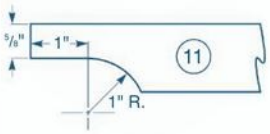
Tambour Slats and Cap Strip
(Side View)



Drawer Exploded View



Drawer Handle Cutout
(Top View)



Drawer Corner
(Top View)

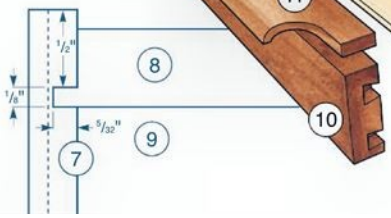


Figure 7: Start the drawer pull.

Figure 8: Curve the drawer front.

Figure 9: Shape the drawer pull.

Figure 10: Resaw stock for the tambour slats.

Figure 11: Gang cut the slats to width.

Figure 12: Wedge the slats into the jig.

drawer sides to the drawer front, I hand cut half-blind dovetails with 5/16"-long tails and 5/16"-deep pins. Although there aren't many dovetails, it takes a lot of fussing and patience to get tight, clean joints, so you may opt to join these parts using a simple rabbet joint instead.

After sanding the inside surfaces of the drawer parts, do a quick dry-assembly to make sure everything fits together correctly. Now glue up the basic drawer box, sliding the drawer bottom in place and tacking it to the lower edge of the back side. Check to make certain that the assembly is square before leaving it clamped up to dry for an hour or so. When the glue dries rubbery hard, scrape off the squeeze-out.

After clamping up the dry-assembled box, slip the drawer into its housing to check the fit. There should be about 1/32" of side-to-side play between the drawer and the sides. If the fit is a little too snug, use a block plane to trim the sides slightly. Now set the drawer front flush with the edge of the sides and mark the sides' curve on each end of the front. Use a hand plane to shave the drawer front until its curve matches the sides (Figure 8). After sanding the front smooth, glue the pull strip to the top edge of the front. When the glue dries, cut away the outer parts of the pull strip on the band saw (Figure 9), following the curve shown in the *Drawings* on page 65. Use a spokeshave or cabinet scraper and sandpaper to fair in this curved cut with the drawer front, then finish-sand the rest of the drawer. Round the top edge of the pull with a block plane and sandpaper, to increase the radius of its curve to about 3/4" (which presents a more elegant look). Also, ease the bottom inside edge of the pull strip, to make it more "finger friendly."

Gluing Up the Tambour

I've saved the most interesting task for last: making the tambour that forms the box's retracting top. To make stock for the tambour's slats, resaw enough 11½"-long 4/4 boards to make twenty-four 1/2"-wide slats as shown in Figure 10. Plane each of the resawn boards down to 3/16" thick, then crosscut the boards exactly 11⅜" long, making sure all ends are cut square. Rip the slats to 1/2" width on the table saw, using a quality blade that leaves nice, clean-cut edges. To save time, I adhesive transfer tape the boards together, and gang-cut four slats at a time (Figure 11).

Create a frame for assembling the tambour by nailing or screwing 1/2"-thick scrap strips to a flat piece of 1/2" or 3/4" plywood. Make the inside dimensions of the frame 11⅜" wide by 12" long. Now set the best 21 of the slats you cut into this frame, with their "good" sides facing down. Add an extra slat, covered with masking tape after the last good slat. Press the tambour tightly together by driving three pairs of small wedges against each other between the last taped slat and the frame (Figure 12).

An 11⅛" x 11" piece of lightweight (9 to 11 oz.) canvas duck fabric makes the flexible back of the tambour. Carefully spread a light, even coating of yellow or white PVA glue onto the slat assembly and press the canvas down onto the slats. Align it with the frame and wipe off any excess glue from around the edges. To set the glue quickly (to keep it from seeping down between the slats), use a household iron on a medium setting (no steam) to heat the canvas (Figure 13, next page). Work the iron over

Figure 13: An iron sets the glue.

Figure 14: Trim the canvas back from the ends.

Figure 15: Glue the cap strip in place.

Figure 16: Dry-clamp the box together.

Figure 17: Test-fit the tambour sheet.

Figure 18: Attach the tambour to the drawer.

the surface for a minute or so, applying only light pressure and keeping the iron moving at all times. Let the tambour cool for about 10 minutes, then remove the tambour from the frame and bend the joints between all the slats open, to assure they're not stuck together. Set it aside to dry overnight.

The next day, trim back the canvas at the sides of the tambour 3/16" from the ends of the slats (Figure 14). On the band saw, trim 7/16" off of both ends of the last slat (at the rear of the tambour), so it can be attached to the drawer. Also reduce the width of the first slat (at the front) to 5/16" wide using a table saw or jointer. To finish off the tambour, the front slat receives a cap strip, cut to the size and profile shown on page 65. Glue this strip in place, centering it on the length of the slat (Figure 15). Now sand the entire tambour surface smooth, easing the edges between slats and rounding their ends slightly. Wax the slat ends a little, so that the tambour will slide more easily within the track.

To attach the tambour to the drawer, dry-assemble the box and clamp the sides, bottom and shelf together (Figure 16). Slide the drawer into place and turn the whole thing upside down on the bench. Slip the tambour into its track with the capped end first (Figure 17). With the drawer held fully closed and the tambour cap tight against the pull strip, press the last trimmed slat against the drawer bottom and drill a pair of small diameter countersunk holes into the edge of the drawer back, spaced about an inch from the ends (Figure 18). Drive 3/4"-long #6 screws into the countersunk holes, then flip the assembly over and make sure the tambour retracts smoothly when you pull the drawer open.

Assembly and Finishing

Disassemble the parts, and glue the bead strip to the shelf, locating it parallel to and 5/16" back from the shelf's front edge. Glue the shelf, bottom and sides together, applying just enough glue to coat the biscuits and slots thoroughly. After the glue dries, sand the entire box, rounding over all edges slightly with sandpaper. You can apply any finish to the box, but an oil finish makes it much easier to finish the tambour slats, so that is my recommendation. Reconnect the tambour and drawer, and your box is ready for use. With any luck, you'll hear a little "wow" the first time somebody opens it.

This clever box has a tambour top that retracts as the drawer is pulled open. This is a great small project that will provide a true woodworking workout.